Fusion imaging of X-ray and transesophageal echocardiography improves the procedure of left atrial appendage closure

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Background:

Left atrial appendage closure (LAAC) is an alternative treatment strategy for patients with atrial fibrillation who are at risk for thromboembolic events and considered not suitable for oral anticoagulation (OAC). LAAC is mainly performed under the guidance of transesophageal echocardiography (TEE) and fluoroscopy. The study presented here should analyze whether fusion imaging (FI) of transesophageal echocardiography and X-ray performed during LAAC is feasible and can improve the results of the procedure.

Methods:

All data are from a retrospective single center study. Sample size was defined as 50 patients in which LAAC was performed without fusion imaging (control group) and 25 patients were the LAAC procedure was guided by fusion imaging (treatment group). Inclusion criteria were defined as age >18 years and completion of an LAAC procedure defined as deployment of a WATCHMAN 2.5 LAA occluder. Study endpoints were procedure time, amount of used contrast medium, radiation dose, final position of the WATCHMAN in TEE (deviation from ideal positioning), and clinical endpoints, respectively.

Results:

LAA closure was successfully performed in all patients. No case of device embolism was occurring, and none of the patients experienced a periprocedural stroke/ TIA nor a systemic embolism, respectively. Mean procedure time was 15 min shorter in the group of patients where fusion imaging was applied ($p<0.001$). Additionally, the use of fusion imaging was associated with a significant reduction of contrast medium (20.6 ml less than in control; $p<0.045$). Regarding the final position of the WATCHMAN, no relevant differences were found between the groups.

Summary: The use of fusion imaging significantly reduced procedure time and the amount of contrast medium in patients undergoing LAAC.